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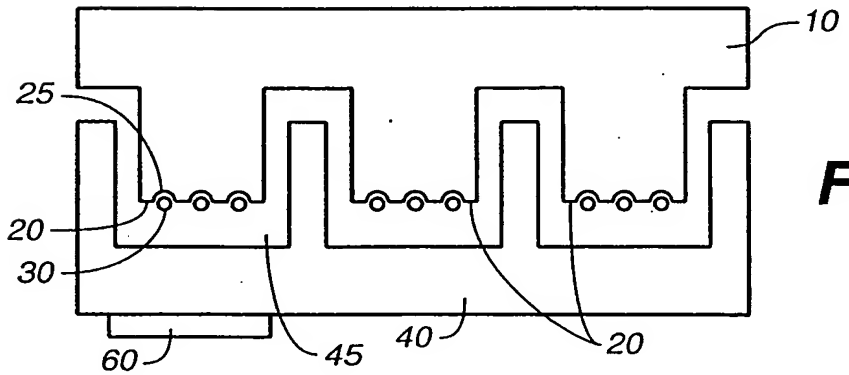


FIG._1A

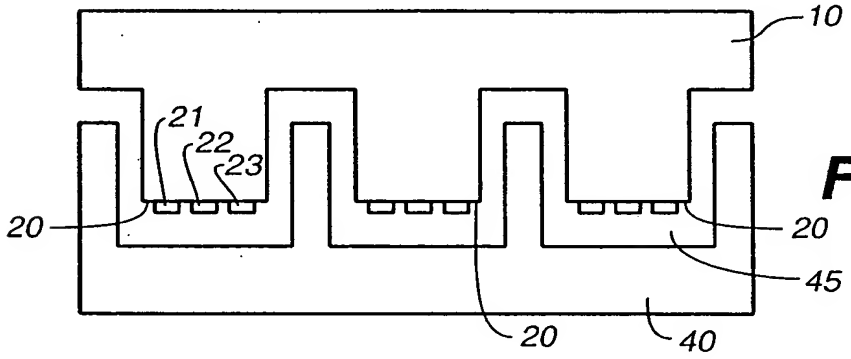


FIG._1B

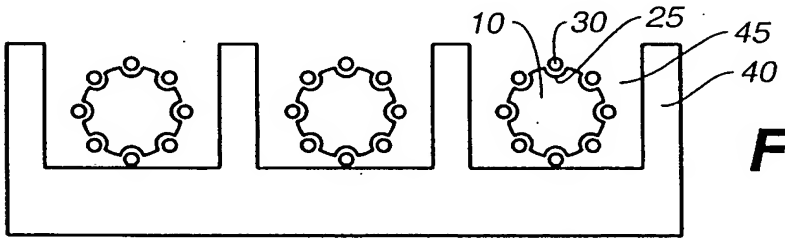


FIG._1C

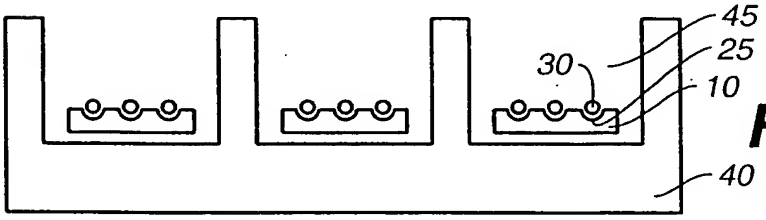


FIG._1D

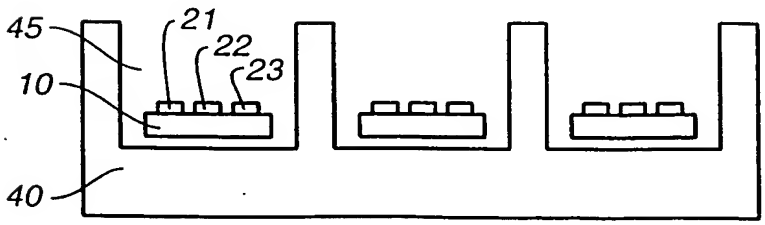
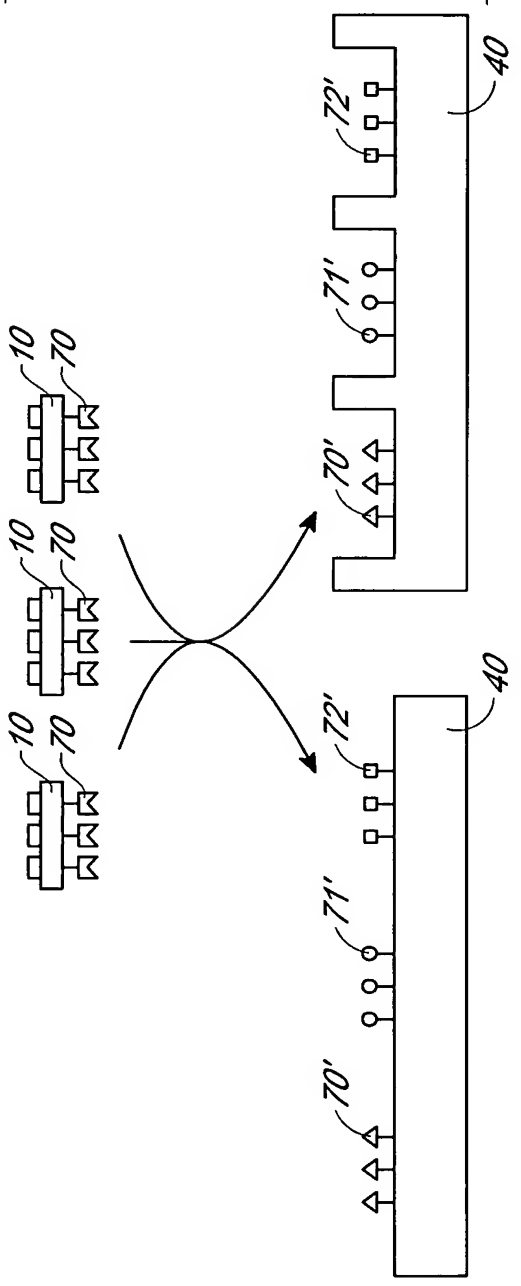


FIG._1E

FIG. 1F



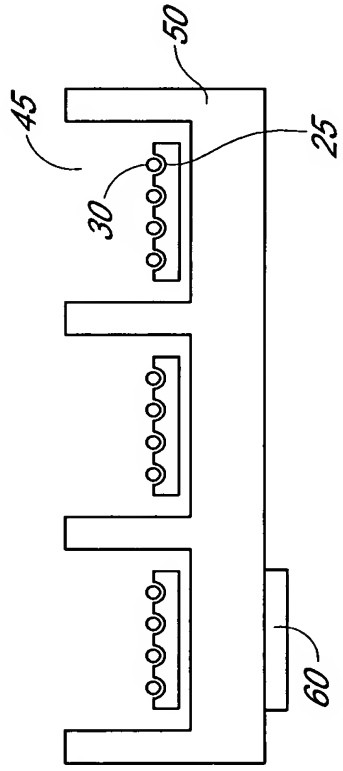


FIG. 2A

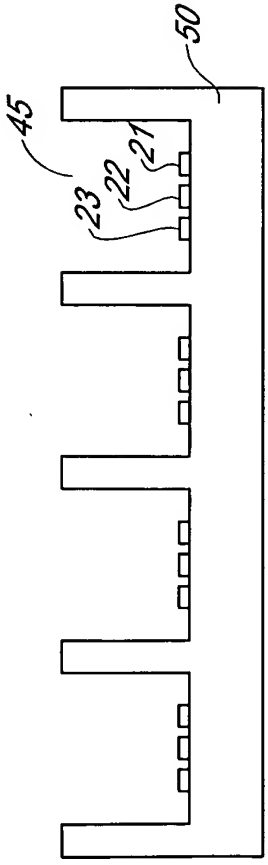


FIG. 2B

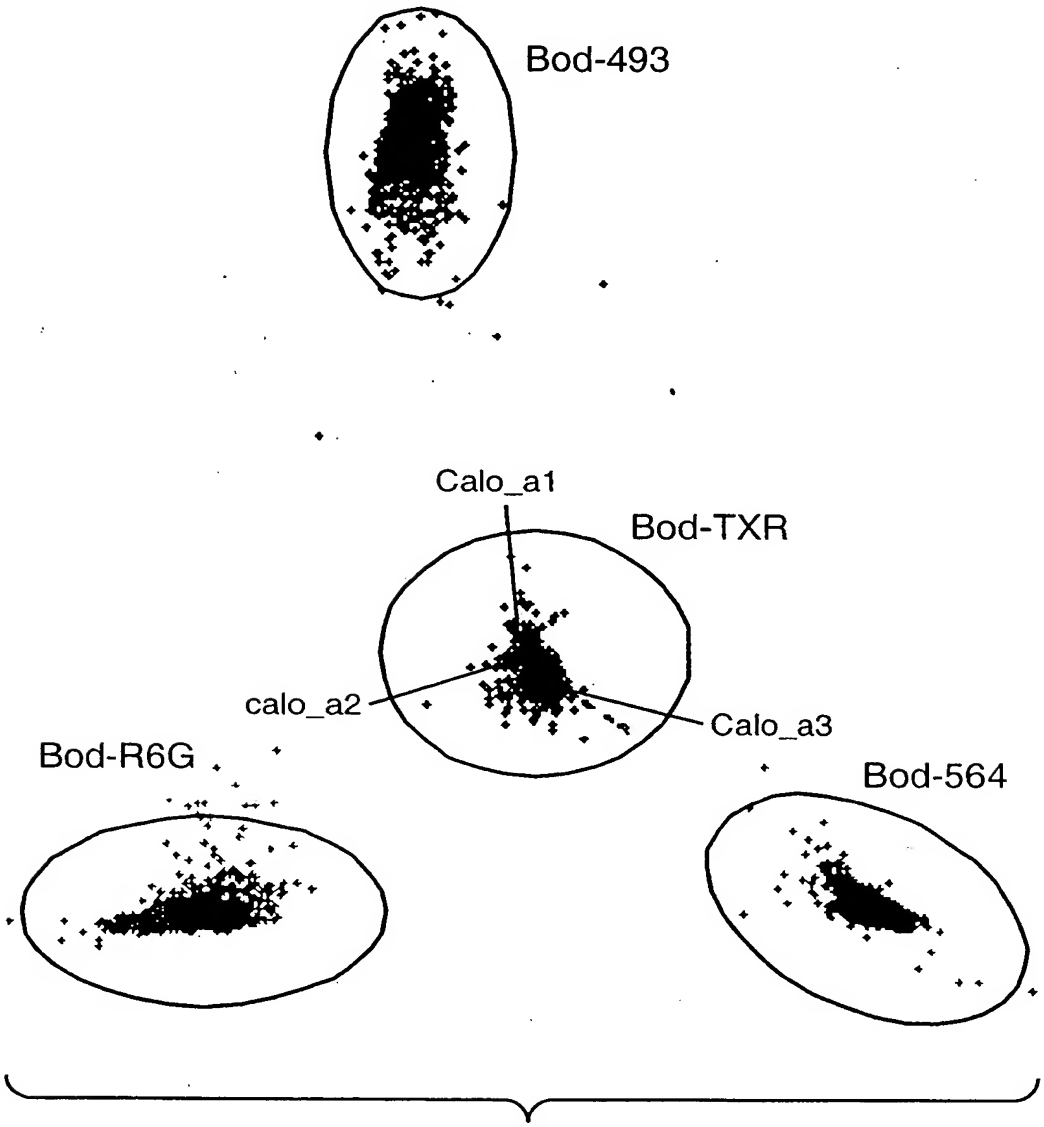


FIG._3

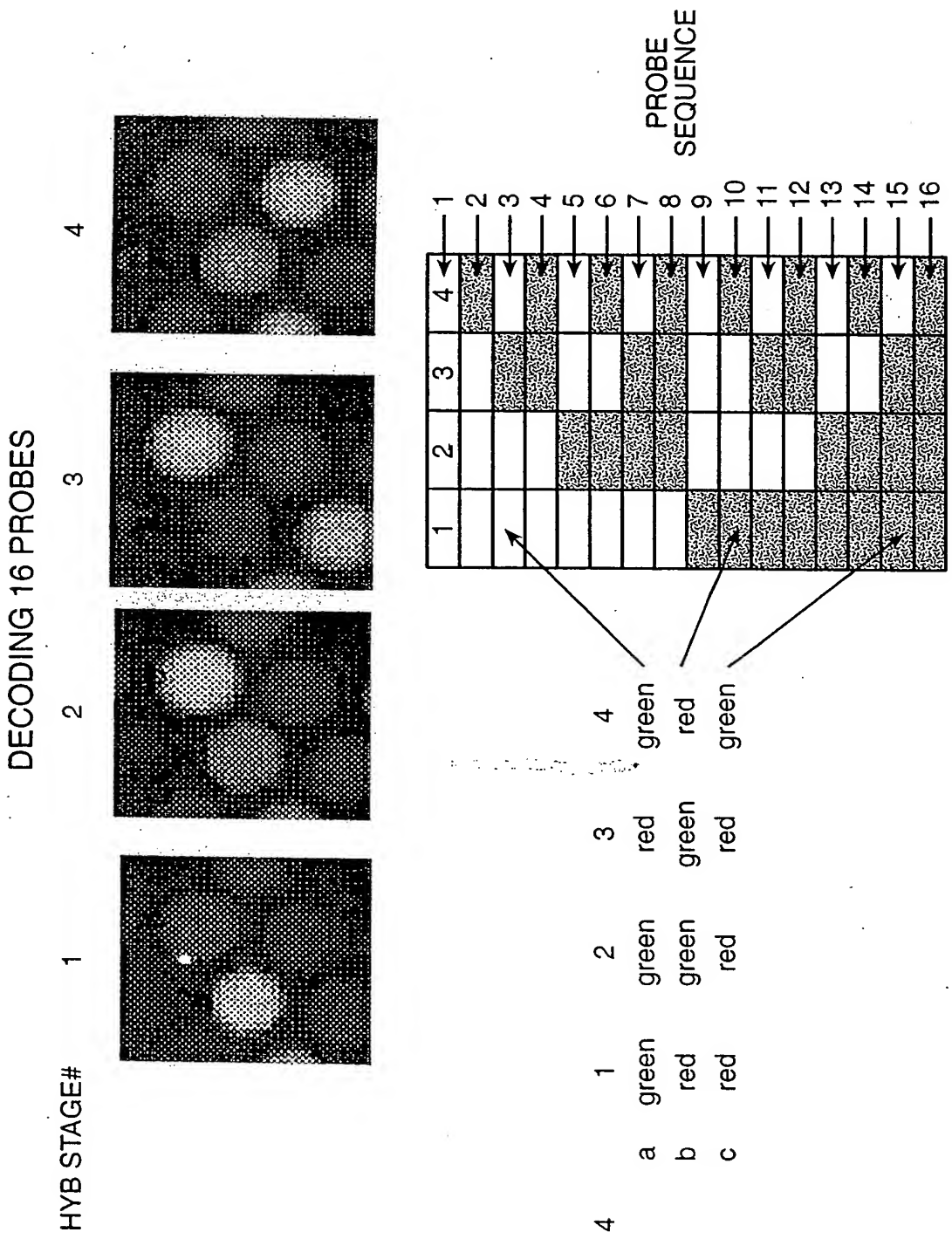

DECODING 16 PROBES
HYB STAGE#
1
2
3
4
PROBE SEQUENCE
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
4
a green green red green
b red green green red
c red red red green
1 2 3 4

FIG._4

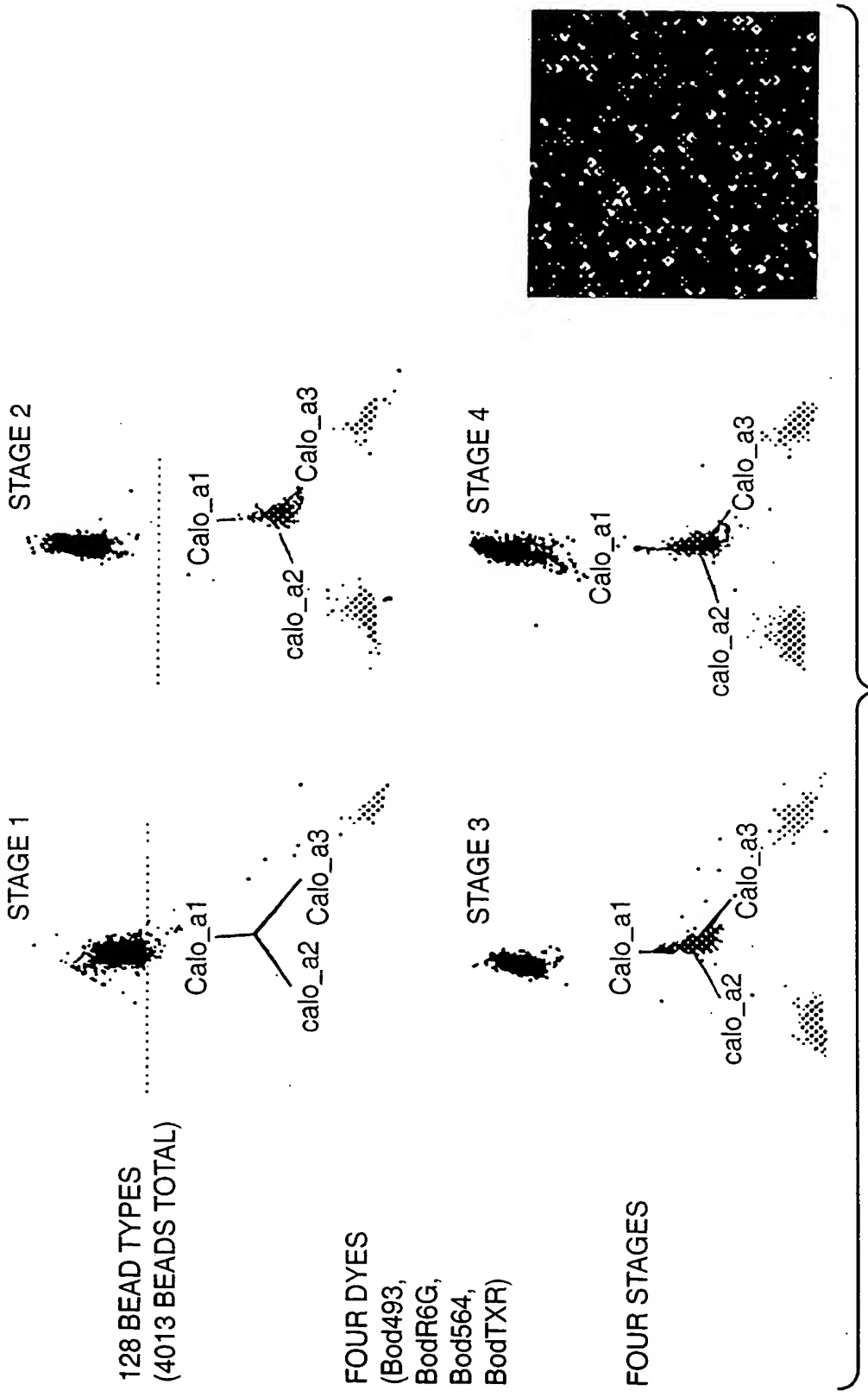

128 BEAD TYPES
(4013 BEADS TOTAL)
FOUR DYES
(Bod493,
BodR6G,
Bod564,
BodTXR)
FOUR STAGES
STAGE 1
STAGE 2
STAGE 3
STAGE 4
Calo_a1
Calo_a2
Calo_a3

FIG._5

GREYSCALE DECODING

Code	S1	S2	S3
1	100	100	100
2	100	100	40
3	100	100	10
4	100	40	100
5	100	40	40
6	100	40	10
7	100	10	100
8	100	10	40
9	100	10	10
10	40	100	100
11	40	100	40
12	40	100	10
13	40	40	100
14	40	40	40
15	40	40	10
16	40	10	100
17	40	10	40
18	40	10	10
19	10	100	100
20	10	100	40
21	10	100	10
22	10	40	100
23	10	40	40
24	10	40	10
25	10	10	100
26	10	10	40
27	10	10	10

FIG._6A

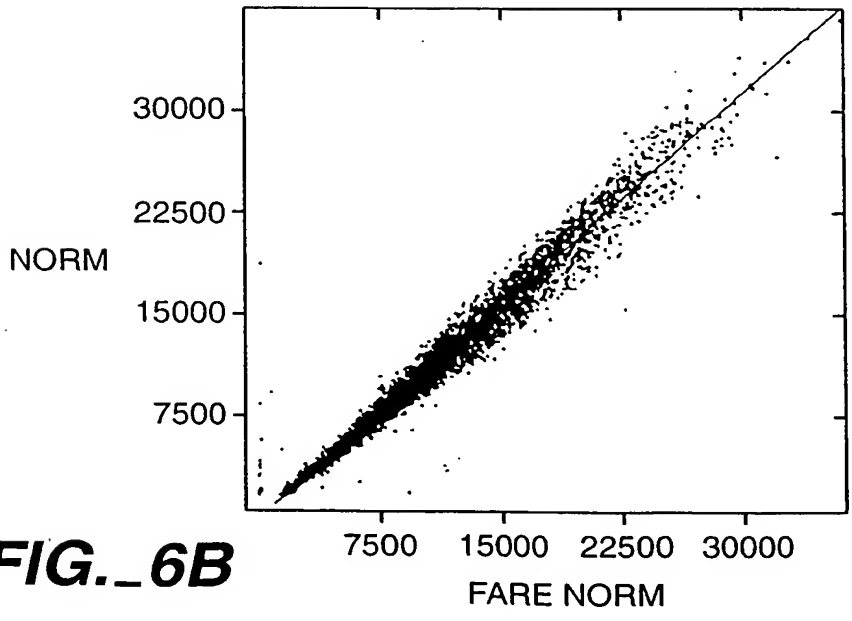
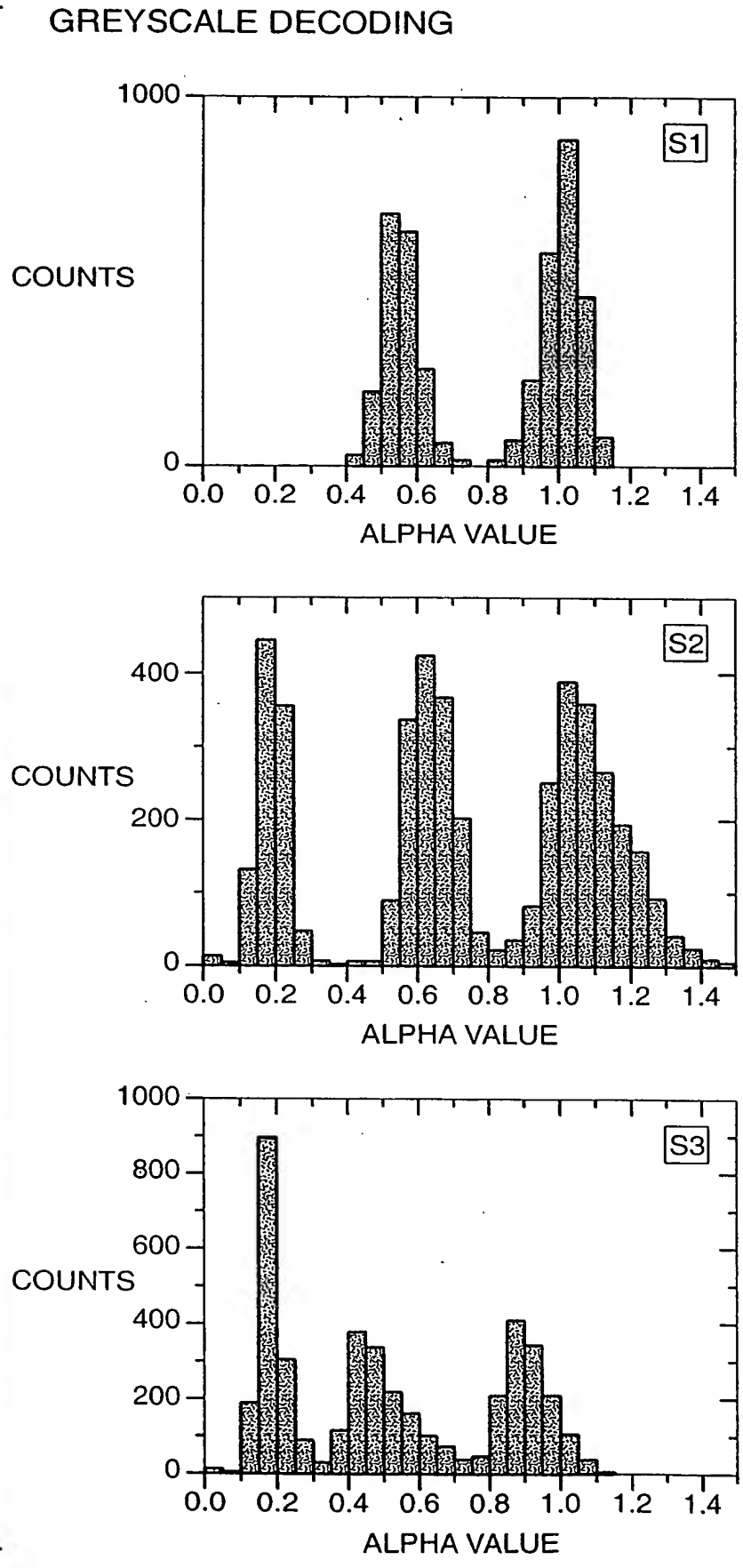


FIG._6B

FIG._6C


GREYSCALE DECODING
1000
COUNTS
0
S1
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
ALPHA VALUE
400
200
COUNTS
0
S2
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
ALPHA VALUE
1000
800
600
COUNTS
400
200
0
S3
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
ALPHA VALUE

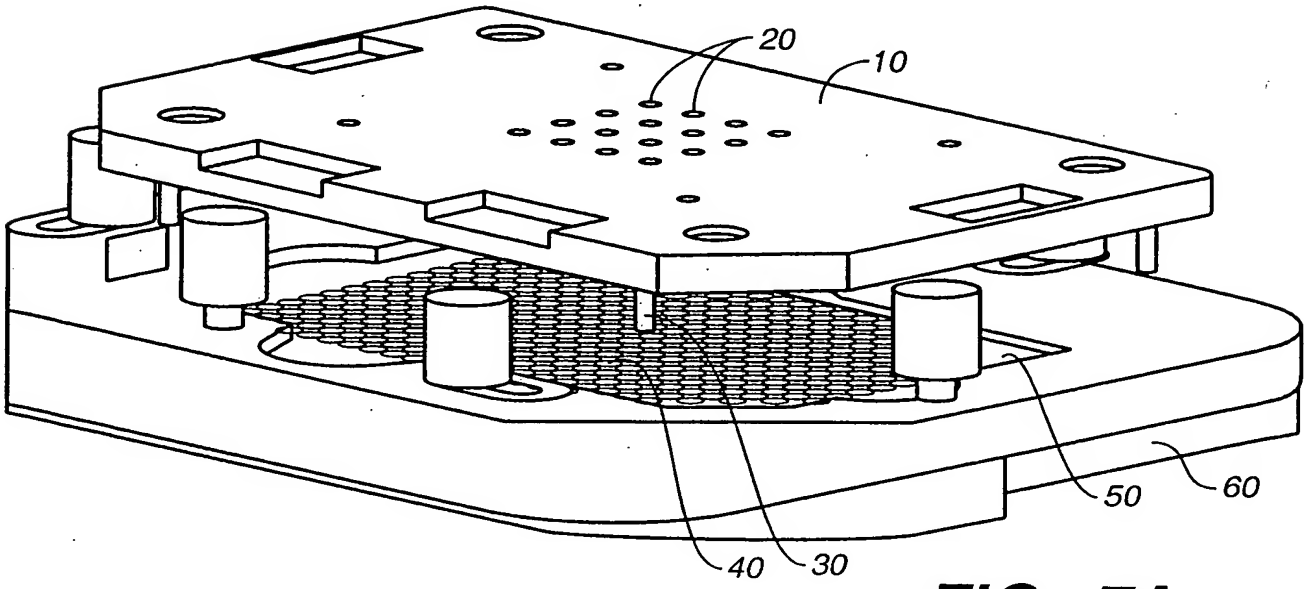


FIG._7A

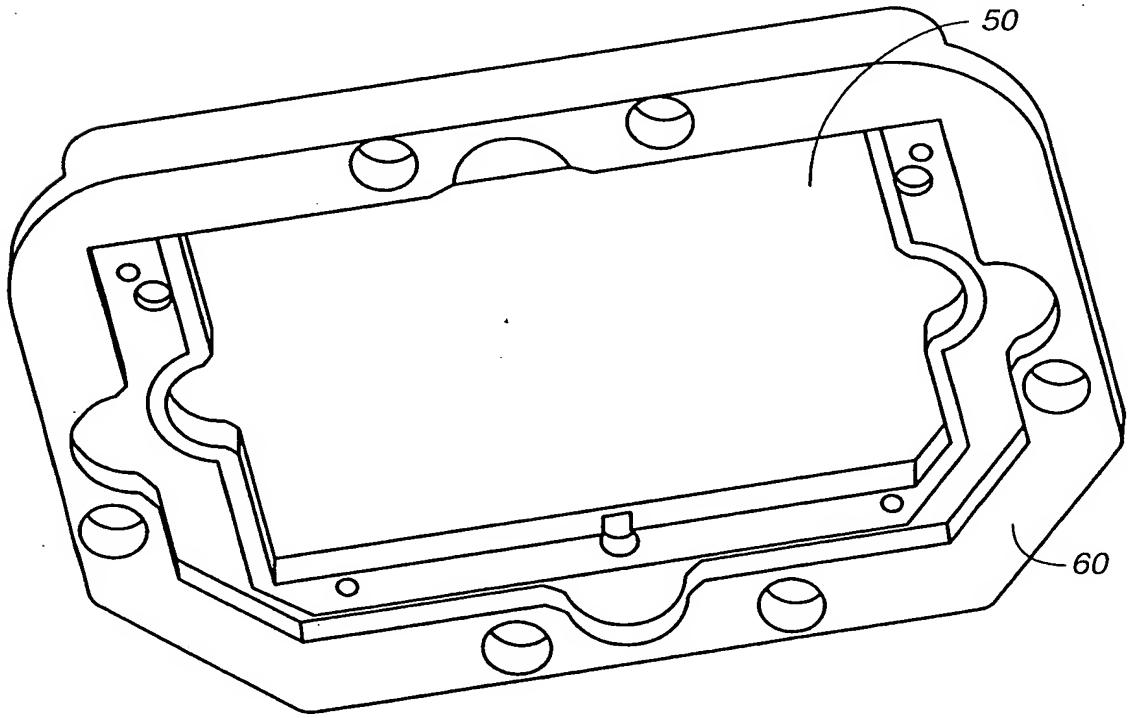


FIG._7B

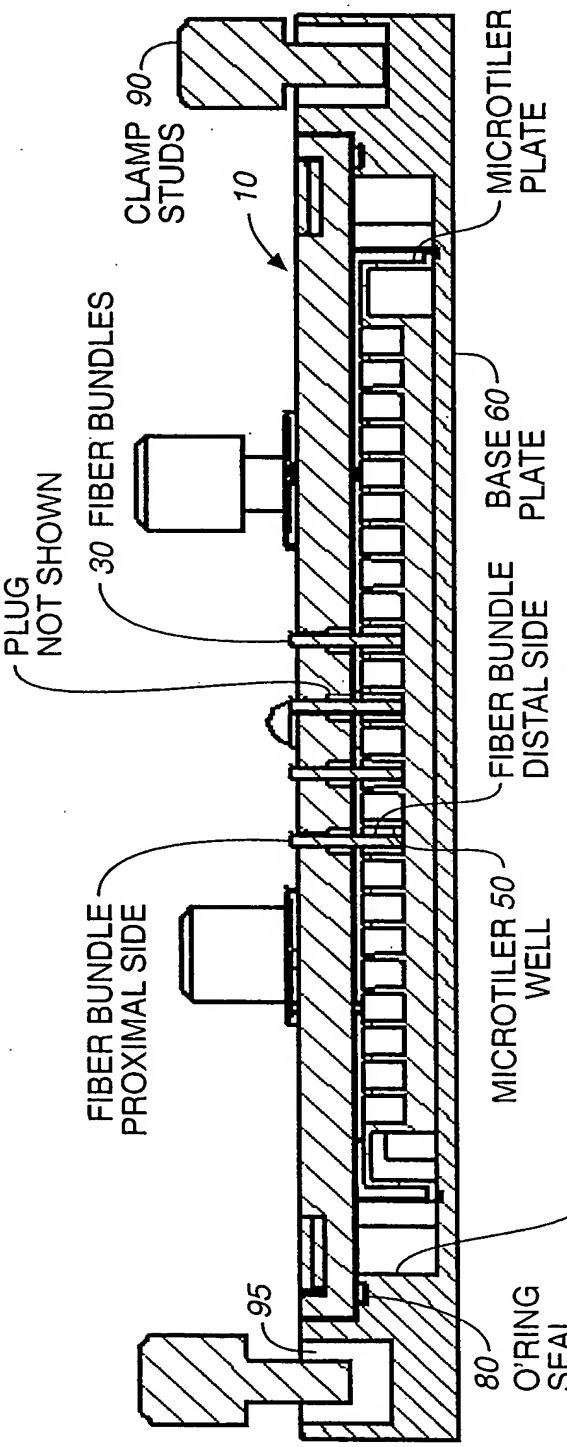

CLAMP STUDS 90
10
MICROTILER PLATE
BASE 60 PLATE
30 FIBER BUNDLES
PLUG NOT SHOWN
FIBER BUNDLE DISTAL SIDE
FIBER BUNDLE PROXIMAL SIDE
MICROTILER 50 WELL
50 BASE CAVITY HOLDING MICROTILER PLATE
95
80 O'RING SEAL

FIG._8

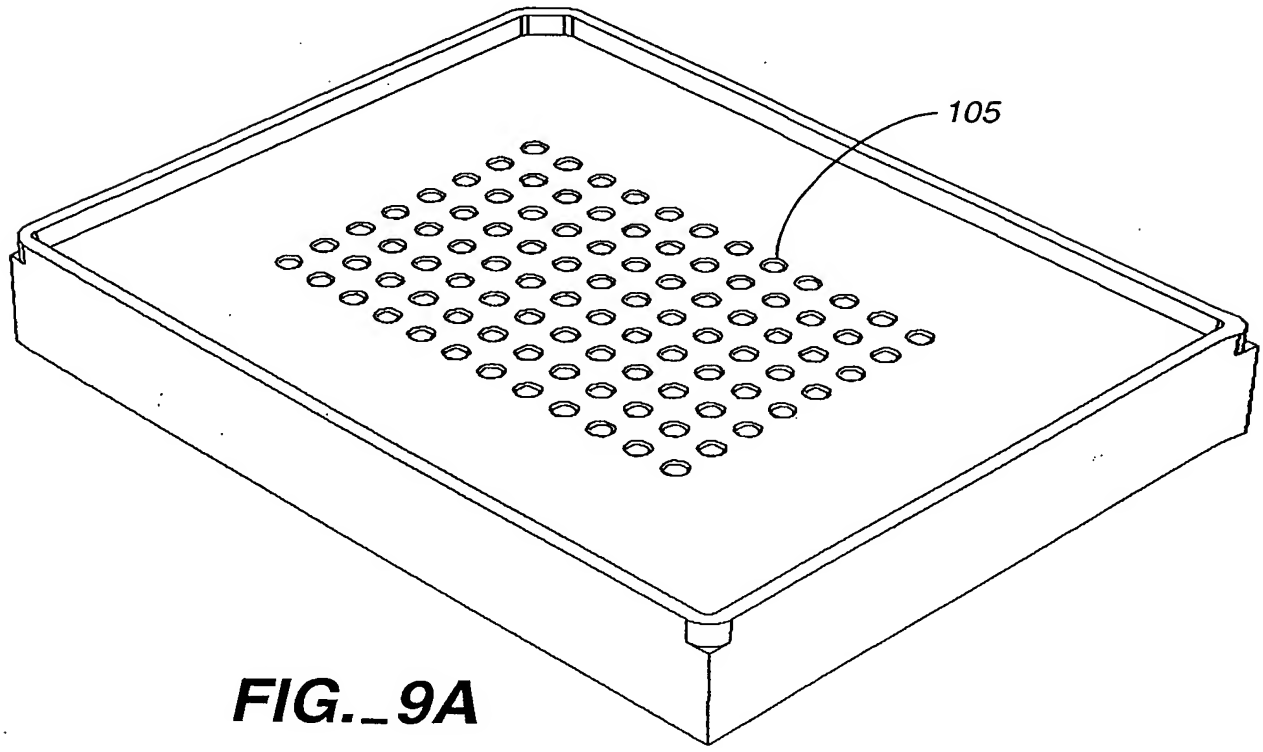


FIG._9A

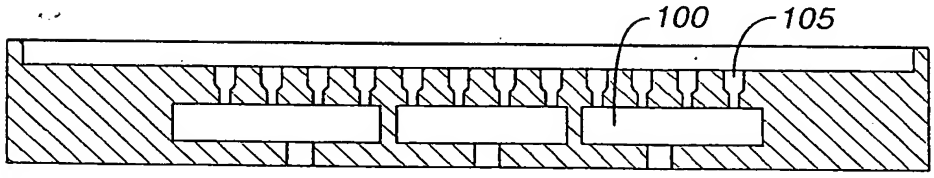


FIG._9B

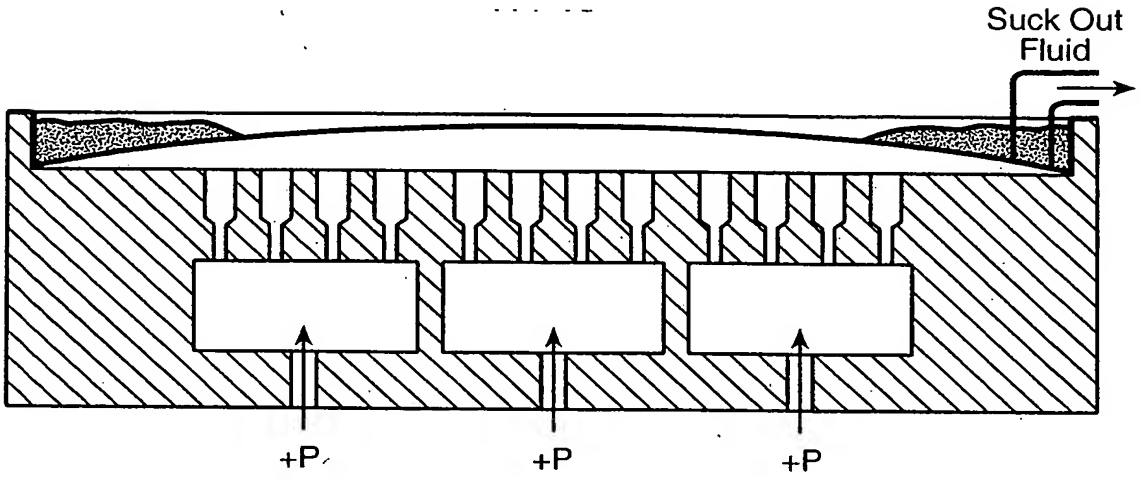


FIG._10A

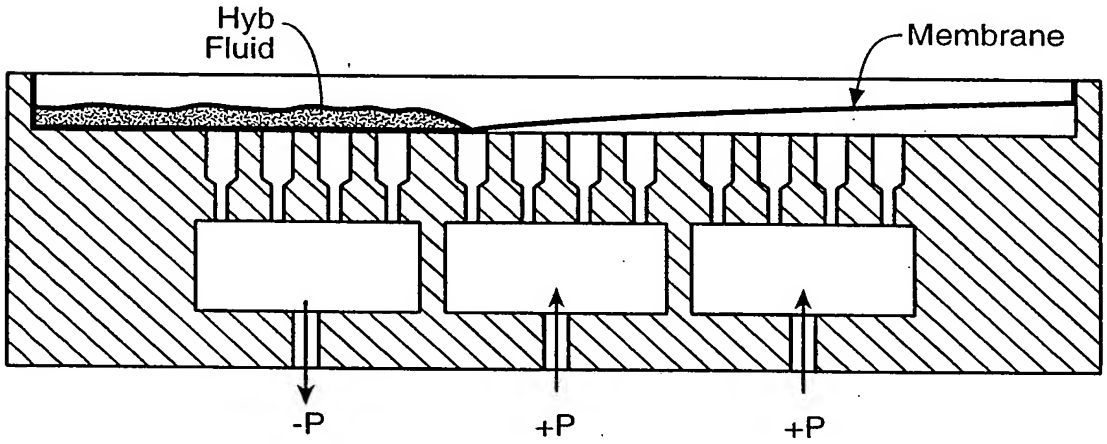


FIG._10B

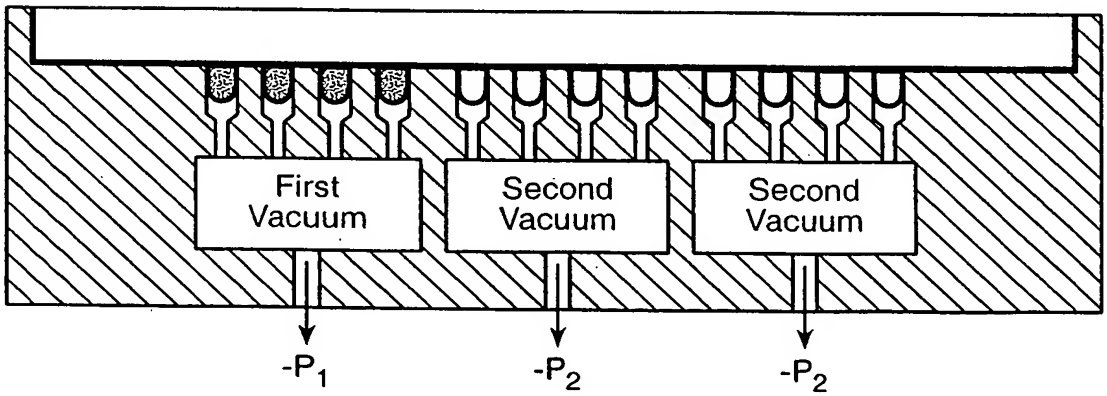


FIG._10C

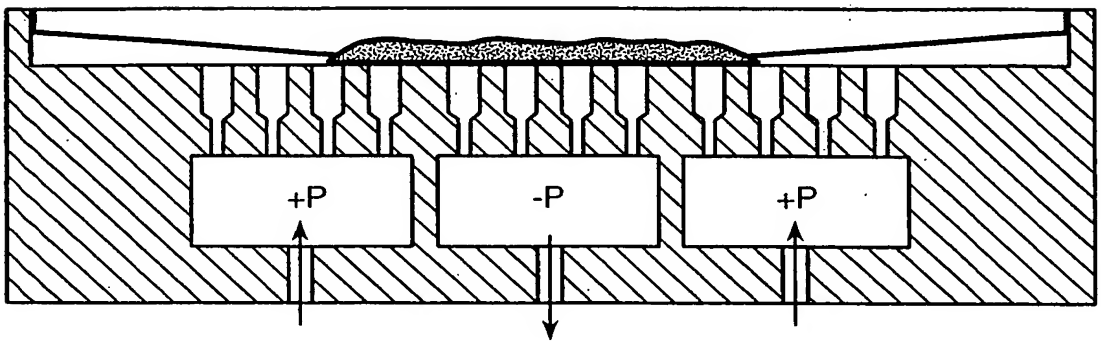


FIG._10D

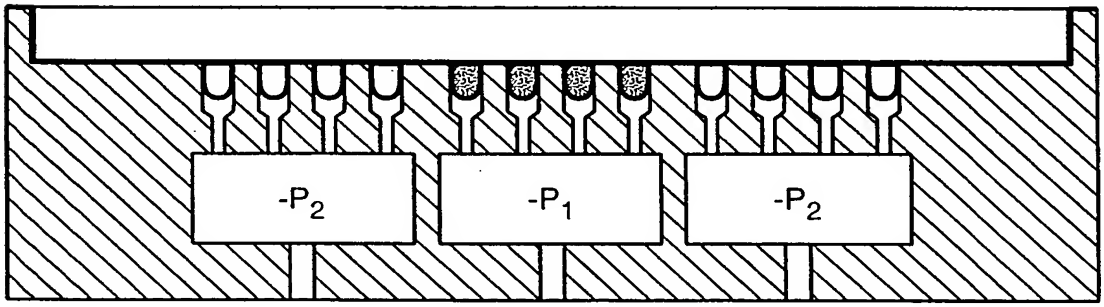


FIG._10E

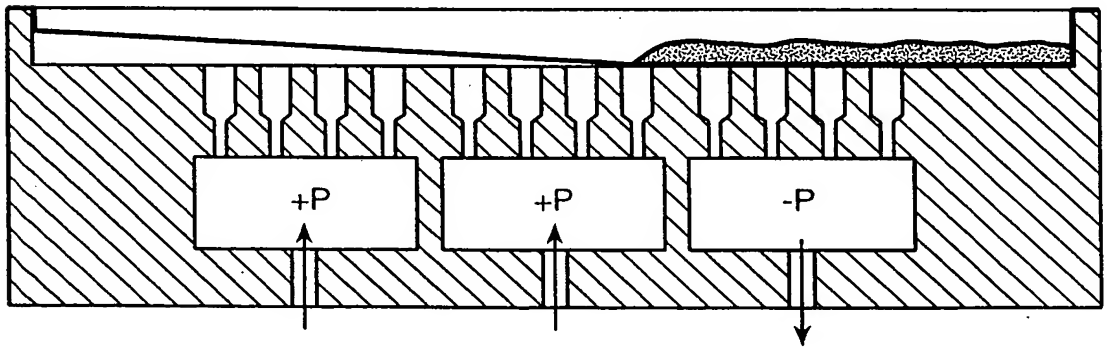


FIG._10F

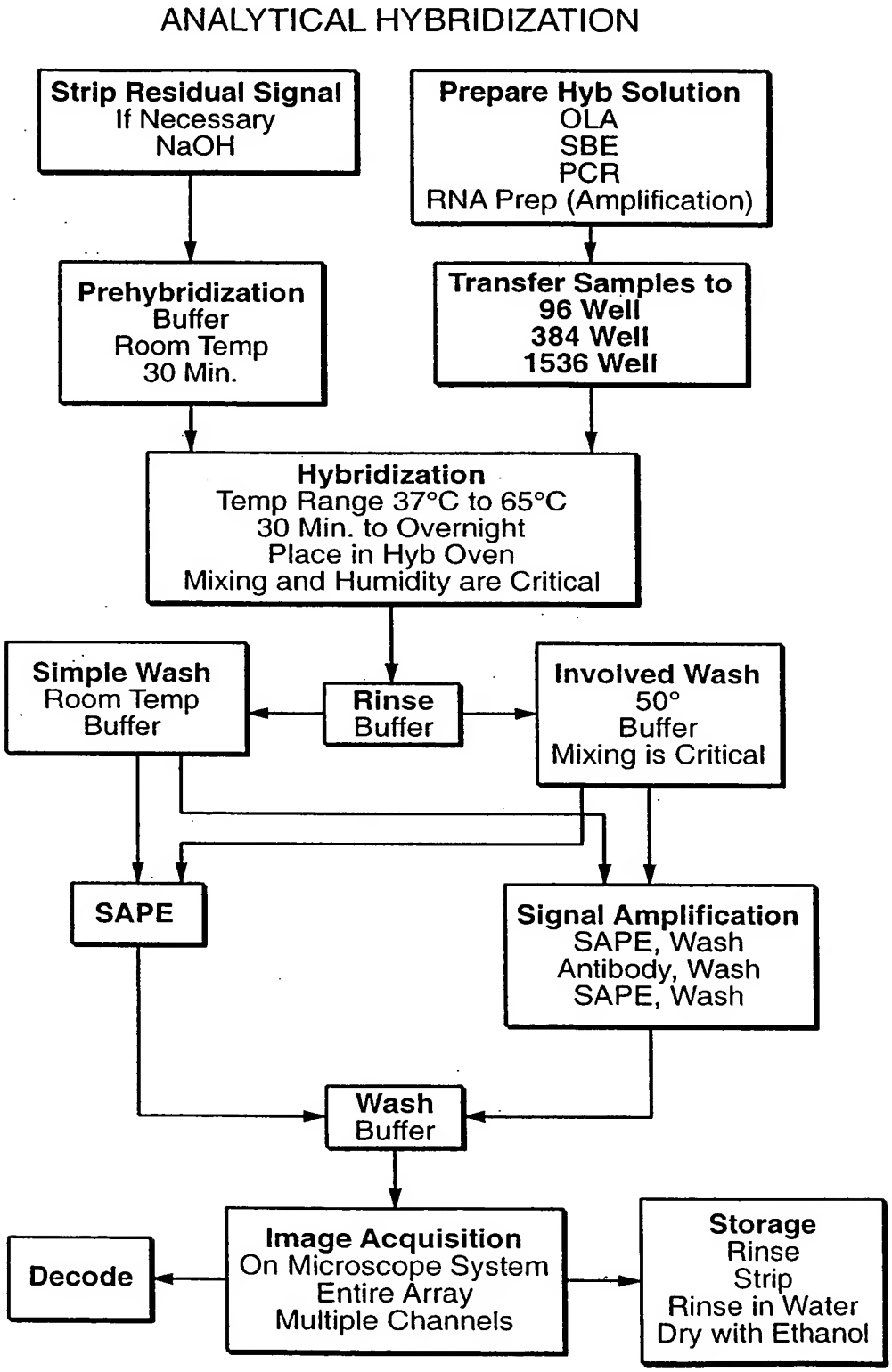

ANALYTICAL HYBRIDIZATION
Strip Residual Signal
If Necessary
NaOH
Prepare Hyb Solution
OLA
SBE
PCR
RNA Prep (Amplification)
Prehybridization
Buffer
Room Temp
30 Min.
Transfer Samples to
96 Well
384 Well
1536 Well
Hybridization
Temp Range 37°C to 65°C
30 Min. to Overnight
Place in Hyb Oven
Mixing and Humidity are Critical
Simple Wash
Room Temp
Buffer
Rinse
Buffer
Involved Wash
50°
Buffer
Mixing is Critical
SAPE
Signal Amplification
SAPE, Wash
Antibody, Wash
SAPE, Wash
Wash
Buffer
Decode
Image Acquisition
On Microscope System
Entire Array
Multiple Channels
Storage
Rinse
Strip
Rinse in Water
Dry with Ethanol

FIG._11

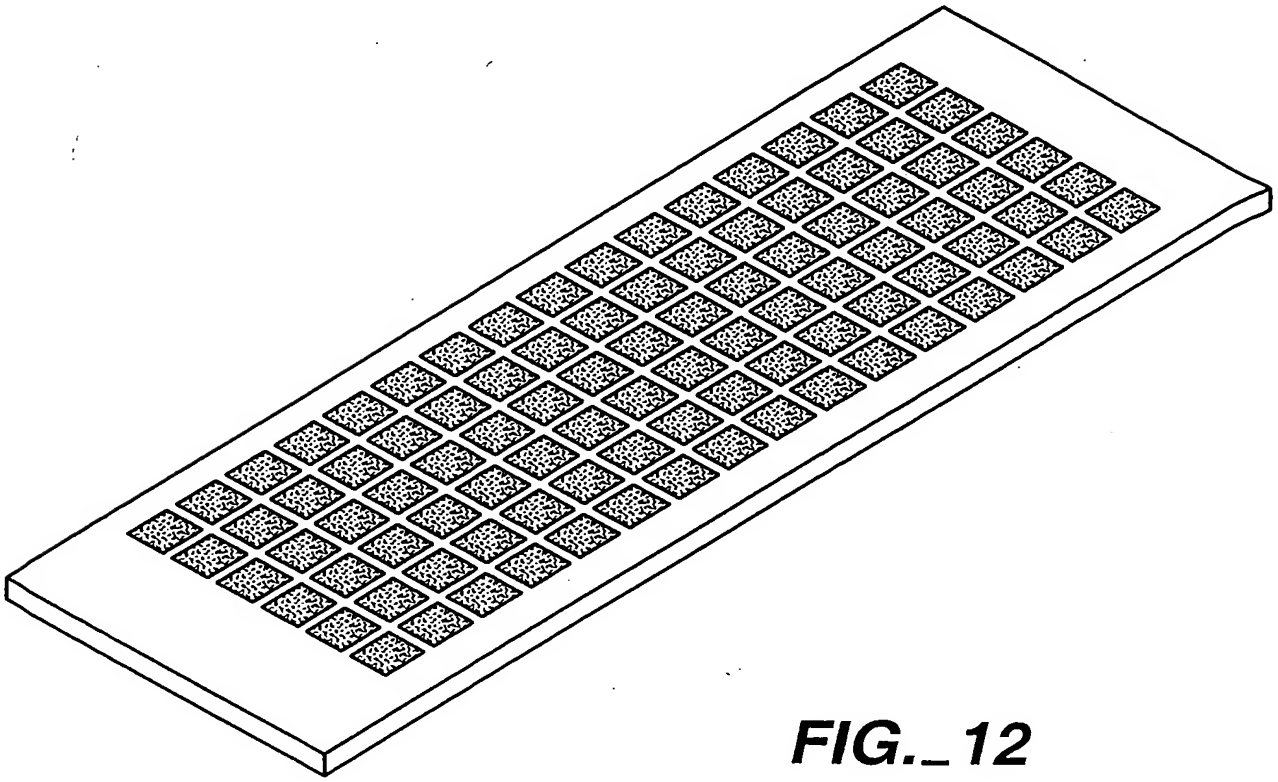


FIG._12

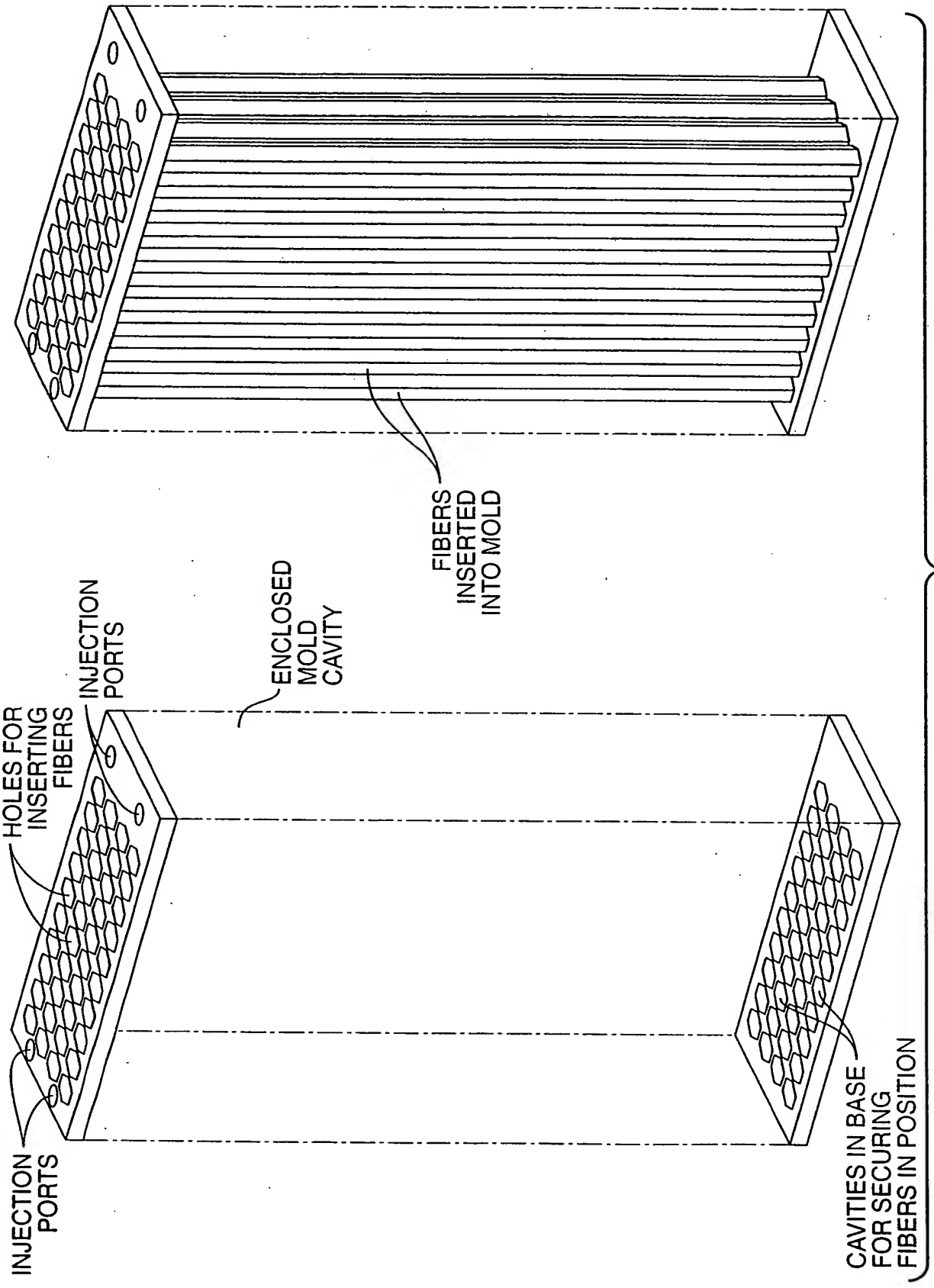

FIBERS INSERTED INTO MOLD
ENCLOSED MOLD CAVITY
INJECTION PORTS
HOLES FOR INSERTING FIBERS
INJECTION PORTS
CAVITIES IN BASE FOR SECURING FIBERS IN POSITION

FIG._13